THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS:

1. A system for transmission of power and/or information between a first location external of a living body and a second position internal of the living body which comprises:

(a) a primary controller comprising a power source and a transmitter locatable at the first location; and

(b) an antenna based device locatable at the second position to receive an output from the transmitter,

wherein the power source is adapted to emit high frequency electromagnetic radiation between 0.5 to 5 GHz.

2. A system according claim 1 wherein the power source in the primary controller is adapted to emit high frequency electromagnetic radiation between 0.8 to 2.5 GHz.

3. A system according to either of claims 1 or 2 wherein the antenna format of the antenna based device is a planar omnidirectional format that is integrated into the construction of the antenna based device.

4. A system according to any of claims 1 to 3 wherein the antenna format of the antenna based device is a simple dipole, a loop with or without crenellations, or a microstrip antenna including slot and patch formats.

5. A system according to any of claims 1 to 4 wherein the primary controller further comprises other devices.

6. A system according to claim 5 wherein the other device in the primary controller is a receiver to receive data from the implanted device.

7. A system according to any of claims 1 to 6 wherein the antenna based device further comprises means to monitor predetermined conditions adjacent the antennae based device and to emit signals representative of one or more of these conditions to be received by the primary controller.

8. A system according to any of claims 1 to 7 wherein the antenna based device further comprises means to generate pulses of current.

9. A system according to any one of claims 1 to 8 wherein the antenna based device is a medical appliance.

10. A system according to claim 9 wherein the antenna based device is a stent.

11. A method for transmitting power and/or information between a first location external of a living body at which a primary controller comprising a power source and a transmitter is located, and a second location inside the living body at which an antenna based device is located, the method comprises the steps of:

(a) generating high frequency electromagnetic radiation between 0.5 to 5GHz from the power source and emitting that radiation from the transmitter of the primary controller; and

(b) receiving the radiation at the antenna based device.

12. A method according to claim 11 wherein the high frequency electromagnetic radiation in step (a) is 0.8 to 2.5 GHz.

13. A method according to either of claims 11 or 12 wherein the method comprises the further steps of:

(c) powering the antenna based device with the radiation; and/or

(d) causing the antenna based device to generate and emit pulses of current; and/or

(e) monitoring predetermined conditions adjacent to the antenna based device and emitting signals representative of one or more of these conditions to be received by the primary controller.

14. A medical appliance comprising a spring-based stent incorporating a monitoring device wherein the spring of the stent acts as the aerial for the monitoring device and wherein the medical appliance is capable of receiving electromagnetic radiation with a frequency between 0.5 to 5 GHz.

15. A medical appliance according to claim 14 wherein the monitoring device is located in the support of the stent.

16. A medical appliance according either of claims 14 or 15 wherein the monitoring device further comprises means to monitor predetermined conditions in the vicinity of the medical appliance.

17. A medical appliance according to any one of claims 14 to 16 wherein the monitoring device works in conjunction with a primary controller.

18. A medical appliance according to claim 17 wherein the monitoring device further comprises means to emit signals representative of one or more of these conditions to be received by the primary controller.

19. A medical appliance according to either of claims 17 or 18 wherein the primary controller is separate and located outside the body in which the stent is implanted.

20. A medical appliance according to any one of claims 17 to 19 wherein the primary controller is a power source for the monitoring device.

21. A medical appliance according to claims 17 to 20 wherein the primary controller is adapted to emit high frequency electromagnetic radiation between 0.5 to 5 GHz.

22. A medical appliance according to any one of claims 17 to 21 further comprising an intermediate implant which relays the power and instructions from the primary controller device to the medical appliance.

23. An artificial muscle stimulation system comprising:

(a) at least one stimulating device for providing artificial electrical stimulation to a muscle under control of a primary controller capable of transmitting high frequency electromagnetic radiation between 0.5 to 5 GHz;

(b) an electromyogram sensor for measuring electromyogram signals from the muscle during stimulation; and

(c) a neural network processor coupled to receive the measured electromyogram signals to extract information regarding force of contraction and fatigue of the muscle;

wherein the primary controller is coupled to an output of the neural network processor to control said artificial electrical stimulation based on said extracted information.

24. A method for implementing an artificial stimulation system which comprises an electromyogram recorder, an intelligent signal processor and an artificial stimulation controller capable of transmitting high frequency electromagnetic radiation between 0.5 to 5 GHz comprising the steps of:

(a) performing a training phase under supervision wherein a fixed stimulation pattern is applied to different electrodes in the same muscle; electromyogram recordings are memorized by the neural network against the muscle contraction pattern; and the system learns the correlation of the electromyogram signal, force and fatigue;

(b) thereafter, recording the force of contraction when the same muscle is stimulated with different pulse shapes and amplitudes;

(c) correlating the time electromyogram wave shape and spectrum of electromyogram signals received from the muscle being stimulated with force of contraction and fatigue; and

(d) changing the pulse shape and rate of stimulation in order to achieve a constant muscle contraction.

25. A method for transmitting information from a primary controller to an antenna based device comprising the step of using a power signal as a carrier for the information signals.